$80\%+1\frac{1}{5}\%=81\frac{1}{5}\%$; $100\%-81\frac{1}{5}\%=18\frac{4}{5}\%$.

$\$564\div 18\frac{4}{5}\%=\$3000$.

The latter is commission on money invested and not brokerage on bills bought.

II. Solution by F. M. McGAW, Bordentown, New Jersey.

Market Value+Brokerage equals whole cost, therefore gain % was $1.00-(.80+.015)=.185$.

The net gain in money was \$364 to which we add the \$200 lost, making a gross gain of \$564. Then $18.5\%=\$564$, whence $\$564\div.185=\$3058\frac{2}{37}$, face.

To determine which answer is correct, assume the answer and work backwards.

I. Assume $\$3048\frac{2}{37}$ as face, then

$\$3048\frac{2}{37}\times.815=\text{cost}=\$2484\frac{2}{37}$,

$\$3048\frac{2}{37}-\$200(\text{lost})=\$2848\frac{2}{37}$

$\$2848\frac{2}{37}-\$2484\frac{2}{37}=\$364$, net gain. Answer.

II. Assume \$3000 as face, then the same operations produce a gain of only \$355.

Also solved by *A. P. REED, H. C. WHITTAKER, P. S. BERG*, and *J. SCHEFFER*.

We received solutions of problem 58, too late for credit in last issue, from *J. SCHEFFER, E. R. ROBBINS*, and *P. S. BERG*.

PROBLEMS.

62. Proposed by F. P. MATZ, Sc. D., Ph. D., Professor of Mathematics and Astronomy in Irving College, Mechanicsburg, Pennsylvania.

A dealer buys milk at $m=5$ cents per quart, and sells it at $n=6$ cents per quart. How much water has he put with the milk, if his rate of profit is $p=60$ per cent.?

63. Proposed by J. A. CALDERHEAD, M. Sc., Professor of Mathematics, Curry University, Pittsburg, Pennsylvania.

I owe A \$100 due in 2 years, and \$200 due in 4 years; when will the payment of \$300 equitably discharge the debt, money being worth 6 per cent.?

64. Proposed by J. K. ELLWOOD, A. M., Principal of Colfax School, Pittsburg, Pennsylvania.

If 27 men in 10 days of 7 hours each for \$375 dig a ditch 70 rods long, 25 feet wide, and 4 feet deep, how long a ditch 40 feet wide and 3 feet deep will 15 men dig in 16 days of 9 hours each for \$500?

[77 2-9 rods and 88 8-9 rods have been obtained. Which is correct?]